



SDMS Doc ID 165957

Additional Work Needed to Close Data Gaps in Perchlorate Toxicology and Ecological Systems

Update: 26 January 2000

Activity and Lead Agency	Objective	Status	Schedule
1. Pathology Working Group (PWG) EPA / NIEHS	Develop consistent nomenclature and scoring system for reading of thyroid and brain slides across all toxicology studies.	NTP currently reviewing and providing QA/QC of available slides (2,600 slides). <i>re-read</i>	PWG first testing strategy study set and new immunotoxicity study thyroids scheduled for 15-17 March 2000. Brain PWG awaits completion of new "effects" protocol. <i>Part of #9</i> Common nomenclature and scoring will be applied to thyroids from "effects" protocol and other relevant studies.
2. Immunotoxicity Studies PSG : Bureson Research Technologies / Air Force Research Labs, Wright-Patterson AFB (hormone analysis)	Repeat of Sheep Red Blood Cell (SRBC) assay due to deficiencies in original study. Conducting an additional assay that evaluates delayed-typed hypersensitivity.	Study in progress	90-Day and 14-day studies complete. Study slides provided to PWG, serum samples sent to Air Force Research Lab (AFRL) for analysis (results due Feb 00). Second study with control and 50mg/kg dose group in progress. Final report to NCEA; 31 May 2000
3. Adult Male Rat Study and PK Model Development DoD : AFRL WPAFB	Model inhibition mechanism plus hormone changes in adult male rats.	Initial model almost complete	Study complete. Currently working on comprehensive adult rat model. Data package by 15 March 00.
4. Pregnant Lactating Female Rat Study and PBPK Model Development DoD : AFRL WPAFB	Model inhibition mechanism plus hormone changes in adult female rats during pregnancy and lactation (critical effect seen during lactation in first study set). Extension necessary to evaluate dosimetry for current critical effect in pups.	Study in progress	PND 20 pups sacked. First data set available 1 March 00, additional data sets through August 00.

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5. Motor Activity Study in Pups <i>DoD : US Navy</i>	Repeat data set due to high variability in the original study.	Baseline studies in progress by Navy. Protocol for full study completed	Pre-study testing complete. 1 Feb 00 start for final study phase. Data available 1 June 00
6. Interlab Hormone Analysis Validation <i>DoD : AFRL WPAFB</i>	Achieve consistency in hormone analysis between laboratories.	Study includes 3 labs evaluating T3, T4 and TSH results from each lab	Data complete on 2 of 3 labs. Expect draft report 1 March 00.
7. Human PK Model Phase I <i>DoD : AFRL WPAFB</i>	Model inhibition mechanism plus hormone changes in adult male humans; single exposures and repeated (14-day) regimen.	Initial model developed based on literature and preliminary human data	Preliminary Human PK Model Theoretical model in progress. Data available 15 March 00. Inclusion of Brabant Human Study results into Human PK Model by 1 June 00.
8. Human PK /RAIU Study <i>PSG : Oregon Health Sciences University (UHSU)</i>	Supports Human PK Model Phase II (AFRL WPAFB) with iodide uptake inhibition mechanism plus hormone changes in adult male humans; repeated (14-day) regimen.	Protocol complete and undergoing UHSU IRB review	Schedule pending. Data sets to be delivered incrementally to AFRL. Final dose in May
9. Perchlorate Effects Study <i>PSG : Premedica Labs (Argus)</i>	Examines brains, thyroids, and hormones during key developmental stages in rats that correspond to time points in Study 4. Will meet data base requirements of guideline developmental study in second species.	Study in progress	Dosing began 28 December 99. Data available 1 June 00.

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<p>10. Site Specific Ecological Impacts Investigation</p> <p><i>DoD : Brooks AFB</i></p>	<p>Bioaccumulation analysis of eco systems in known affected areas: Lake Mead, Nevada; Indian Head, Maryland; specific portions of the lower Colorado River; McGregor, Texas; and White Sands, New Mexico. Sites should be representative of soil types and climate considerations.</p>	<p>Protocol development in progress. Draft SOW complete and in review.</p>	<p>Schedule to be determined upon completion of SOW and receipt of protocols from contractor. Anticipate receipt of protocols in Feb 2000.</p>
<p>11. Farm Gate Food Analysis</p> <p><i>DoD : Brooks AFB</i></p>	<p>Evaluate potential impact to crops in areas where irrigation water contains perchlorate and representative of climate and soil types: corn, soy, oranges, milk and lettuce. Representative of farming practice and growing season (harvest). Factors governing uptake and potential bioaccumulation, soil conditions and mass balance to be characterized. Requires extension and validation of analytical methods to plant and animal tissues.</p>	<p>Funding approved Coordinating with FDA, USDA, EPA and state parties. Draft protocol complete and in review.</p>	<p>Sampling could begin 1st quarter 2000. Crop availability effects sampling timing. Inclusion of preliminary results in NCEA peer review is anticipated.</p>
<p>12. Soil Column Study</p> <p><i>EPA : NERL Athens (under contract with the USAF)</i></p>	<p>Analysis of perchlorate transport within various types of soil columns.</p>	<p>Funding approved</p>	<p>Schedule to be determined.</p>
<p>13. Developmental embryonic toxicology in amphibians.</p> <p><i>University of Oklahoma (under contract with the USAF)</i></p>	<p>Determines a concentration/response curve for amphibians exposed to perchlorate and determine the ability of perchlorate to bioaccumulate in amphibians.</p>	<p>Funding approved</p>	<p>Schedule to be determined.</p>

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<p>14. Phytoremediation of perchlorate by woody plants</p> <p><i>University of Georgia (under contract with the USAF)</i></p>	Investigate degradation of perchlorate in woody plants.	Funding approved	Schedule to be determined.
<p>15. Analytical detection capability and validation (groundwater, blood, urine, soy, citrus etc).</p> <p><i>EPA : NERL Athens, NRMRL DoD : AFRL WPAFB and Brooks AFB</i></p>	Maintain credibility in detection capabilities.	Funding approved	On going activities including drinking and groundwater, urine and blood. Plant and animal tissues still in coordination.
<p>16. Treatment Technology</p> <p><i>DoD : Tyndall AFB with industry partnership</i></p>	Coordinate cleanup technology development.	Funding approved	In the process of setting up meeting with technology group.